LEAD-FREE SOLDER ALLOYS AND METHODS OF MAKING SAME

ABSTRACT OF THE DISCLOSURE

According to one aspect of the invention, a modified Sn-Ag-Cu, lead-free solder alloy is disclosed. The alloy comprises an additive element selected from the group consisting of Au, Ni, Pd, Fe, Co, Zn, Cr and combinations thereof, present in the alloy in an amount effect to form an intermetallic interface between the alloy a substrate, the intermetallic interface having a composite structure without scallop formation and including Sn islands.